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**Solid-state six degree of freedom, motion sensor for field robotic applications**

Madni, A.M.; Bapna, D.; Levin, P.; Krotkov, E.

Intelligent Robots and Systems, 1998. Proceedings., 1998 IEEE/RSJ International Conference on Volume 3, Issue , 13-17 Oct 1998 Page(s):1389 - 1398 vol.3

Digital Object Identifier 10.1109/IRROS.1998.724782

**Summary:**A solid-state inertial measurement unit (IMU) referred to as the MotionPak™ is described. The IMU developed by BEI Sensors & Systems Company, consists of three micromachined quartz rate sensors and three accelerometers to provide a six degree of freedom (DOF), miniature, high reliability, low cost motion sensor which Carnegie Mellon University is utilizing to adapt to field robotic applications. Theory of operation and applications of the IMU are presented together with preliminary results in fusing the IMU data with a compass for a field robotics application

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